HOW-TO BOOKLET #3139

ANNUALS & PERENNIALS

TOOL & MATERIAL CHECKLIST

- ❑ Spade
- ❑ Seeds
- ❑ Tine Rake
- ❑ Potting Soil
- ❑ Fertilizer
- ❑ Garden Fork
- ❑ Small Containers
- ❑ Fluorescent Light
- ❑ Household Spray Bottle
- ❑ Garden Hose

Read This Entire How-To Booklet For Specific Tools and Materials Not Noted in The Basics Listed Above

When most people think of flower gardens, they are thinking of annual and perennial plants. These two vast groups provide colorful flowers and handsome foliage in almost unlimited variety. Whether your gardening aspirations are as modest as a kitchen window box or expand across a backyard acreage, a basic understanding of annuals and perennials will be very helpful.

In this How-To Booklet, we'll introduce each group of plants, suggest qualities to look for when choosing them, and outline how to get started growing them.

WHAT ARE ANNUALS AND PERENNIALS?

Technically speaking, an annual is a plant that lives only a single growing season, during which it flowers, sets seed, and dies. Marigolds, zinnias, and calendulas are common examples. Perennials are plants that don't die after setting seed; they keep growing year after year unless killed by frost, drought, or other adversity. Some perennials stay green all year, especially where winters are mild. Others go dormant—their tops turn brown or die down to the ground, but the roots stay alive and send up new shoots the next year. Lilies, daylilies, peonies, hostas, astilbes, and ferns are common perennials.

The distinction between annuals and perennials isn't clear-cut, since many plants that are used like annuals—to provide color for one season in the garden—would actually be perennial if

protected from frost. Coleus, impatiens, begonias, and geraniums make wonderful garden "annuals," but you can keep them from year to year by bringing them indoors for the winter.

Annuals put all their energy into creating seeds to perpetuate the species. This effort produces an abundance of flowers, typically for long periods during the growing season. Perennials also produce beautiful flowers, but often for shorter duration, providing time to store energy in roots and other plant parts to fuel the yearly rejuvenation.

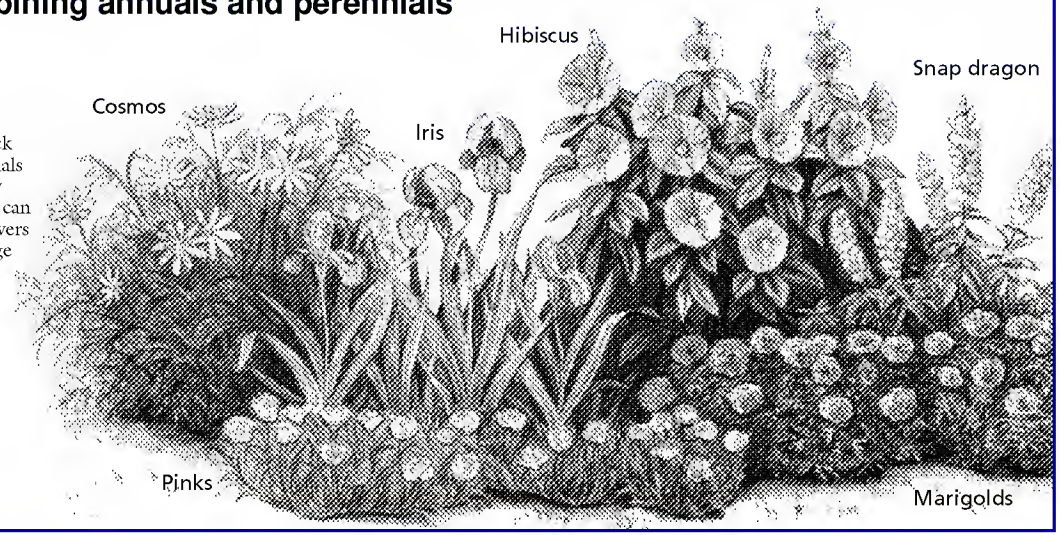
Annuals give quick results in the garden, allowing you to make a satisfying display in a few months. But you have to start from scratch again the next year. Although a number of perennials flower in their first growing season, many take three years to reach robust maturity. Once established, they commonly live for years, so you can build on your previous efforts. A good way to start a garden is by growing annuals interspersed with a few perennials, adding more perennials as your garden and gardening interests grow.

CHOOSING PLANTS

Annuals and perennials are most often prized for their flowers. These range from the tiny blooms of baby's-breath, floating like clouds over fine foliage, to the giant blossoms of hibiscus, which may attain the size of dinner plates. Cheerful daisies, elegant irises, fragrant pinks, playful snapdragons—the pleasures of annual and perennial flowers are many, and reason enough to grow these plants.

There are, however, other qualities you should consider when selecting annuals and perennials. Despite the prominence of flowers, the dominant colors in the garden are the greens of the foliage. Many annuals and perennials offer handsome foliage—the delicate tracery of ferns, the graceful arching ribbons of daylilies, the broad leaves of hostas, the plump succulent leaves of sedums, the colorful leaves of coleus. For those perennials that flower only a short time, foliage is a crucial consideration. Select foliage as a backdrop for flowers or as a focal point on its own; foliage plantings of complementary or contrasting colors, textures, and forms can be very effective.

Fig. 1: Combining annuals and perennials



In a mixed planting, annuals provide quick results while perennials develop. At maturity (shown here), a mix can provide colorful flowers and handsome foliage from spring to fall.

In addition to a plant's flowers, foliage, and form, you should consider its preferences for growing conditions. Some annuals and perennials thrive in full sunlight, others in the shade, still others in a dappled part sun, part shade. Heat, drying winds, high humidity, drought—some plants fare better than others in these conditions. Because perennials live longer than a year, they must be able to withstand the rigors of seasonal change. The most common measure of this ability is the minimum temperature a plant can survive. Gazanias, for example, are evergreen perennials in mild climates but are wiped out when temperatures dip into the teens, and so are grown as annuals in colder areas. Horticulturists have divided the country into 11 "hardiness zones," based on average minimum temperatures. The hardiness zone rating for perennials is frequently given on plant labels, in catalogs, or in books.

Plants adapted to the conditions of your area (soil, temperatures, rainfall, and so on) are more likely to succeed for you and to require less regular care. Knowledgeable staff at a nursery or garden center can offer valuable help in identifying plants well suited for your region and for your purposes.

PREPARING A PLANTING BED

Of all gardening tasks, few have such lasting consequences as preparing the soil in a new planting bed. Even the poorest of soils can be improved. Because plants vary in their needs, there isn't a single recipe for soil improvement. In general, however, many common annuals and perennials share preferences for soil that retains moisture without becoming soggy; whose texture allows roots to penetrate easily; and that contains nutrients sufficient for steady growth.

Fortunately, you can enhance all these qualities simply by adding organic matter to your soil when you dig a new bed or rejuvenate an old one. Common organic soil amendments include compost, rotted manure, and peat moss. (If you're concerned about immediate fertility, add 1-1/2 to 2 lb. of 10-10-10

granular fertilizer per 100 sq. ft. to a new bed.) While organic amendments will benefit almost all soils, they may not correct more specific problems. To learn more about your soil and what it may need, call your Cooperative Extension agent and ask about soil-testing services in your area; these are often inexpensive and provide detailed recommendations.

The first step in digging a new bed is outlining its perimeter. You can tie string to stakes for beds with straight sides; use a garden hose or make lines with powdered horticultural lime for undulating shapes. Next, remove existing vegetation. Lift turf as you dig, composting it or burying it upside down at the bottom of the new bed. For large weed-infested areas, you may want to apply a nonspecific herbicide, which will kill all plants it touches. If you want to avoid toxic chemicals, smother weeds and turf by spreading a layer of black plastic over the site for several weeks in the heat of summer.

Two methods of digging a new bed are common, and both are shown in **Fig. 2**. For most soils, most annuals, and many perennials, "single-digging" to the depth of a spade (8 to 10 inches) is sufficient, aerating the soil while allowing you to remove rocks and roots and add several inches of organic amendments. "Double-digging" goes twice as deep, allowing the addition of more amendments and the deeper aeration of poorer soils or poorly drained soils.

STARTING PLANTS FROM SEEDS

You can start annuals and perennials from seeds or purchase plants from a nursery or garden center. Starting from seeds is less expensive, but it takes more time and effort. Many perennials must be purchased as plants, because seed-grown plants may not produce the desired characteristics.

Direct seeding. Annuals and a few perennials are sometimes sown directly where they are to grow (some plants do best when direct sown). Seed packets are dependable sources of basic information on planting—when, how deep, how long until germination. After preparing the soil as previously described, rake it smooth and sow the seeds evenly on the surface if you're carpeting an area with plants, or sow 3 to 5 seeds in a spot where you wish to grow a single plant (thin to the strongest seedling later). Cover the seeds with a fine layer of soil, if recommended on the packet, then water thoroughly. The key to success is to keep the seeds moist until they germinate. A layer of straw or a covering of light horticultural fabric can help conserve moisture.

When the plants are large enough to work with, thin to the recommended spacing and continue to water regularly (do so even for drought-tolerant plants) until growth is well established. For perennials, this extra attention may be needed throughout the first season.

Seed starting in containers. Direct seeding can be risky. A sudden cold spell, a torrential rain, or hot drying winds can reduce germination or wipe out little plants. Starting seeds in containers and growing them under controlled conditions into robust seedlings avoids these problems. The method shown in **Fig. 3** works well. All of the materials can be purchased at a nursery or garden center.

Sow seeds in 4-inch plastic containers filled nearly to the top with moist potting soil. Wet the sown seeds with a household spray bottle and set the pots in a warm part of the house out of direct sunlight. Keep seeds moist by spraying or by enclosing the containers in plastic bags. When the seeds have germinated, place the containers under lights for at least 12 hours a day. Whenever the potting soil dries out, set the containers in a shallow tray filled with water so the soil absorbs water from the bottom, which encourages deep rooting. (Remember to remove the containers and allow them to drainch) Feed the plants once a week with a soluble fertilizer diluted to one half or one quarter the ordinary rate. Raise the lights as the plants grow to keep the fluorescent tubes about 2 inches above the top leaves.

After the plants have developed their first true leaves, transplant the seedlings to individual containers. Four- or six-cell plastic packs work well for small plants; use 4-inch pots for plants that quickly grow large. Fill the cells or pots with fresh, moist-

Fig. 2: Digging a garden bed

Single- and double-diggers both start with a 2-ft.-wide trench, one spade deep, across one end of the bed. Move the soil to the other end of the bed. If you're single-digging, spread amendments on the trench bottom now.

To double-dig, thoroughly loosen the soil at the trench bottom with a garden fork to another spade's depth, mixing amendments at the same time.

Next to the first trench, dig a second, filling the first trench with the soil. Work in amendments at one or two spade depths as previously described. Continue this process across the bed; fill the last trench with the soil removed from the first. Rake the surface to break up or remove clods.

Fig. 3: Starting seeds in containers

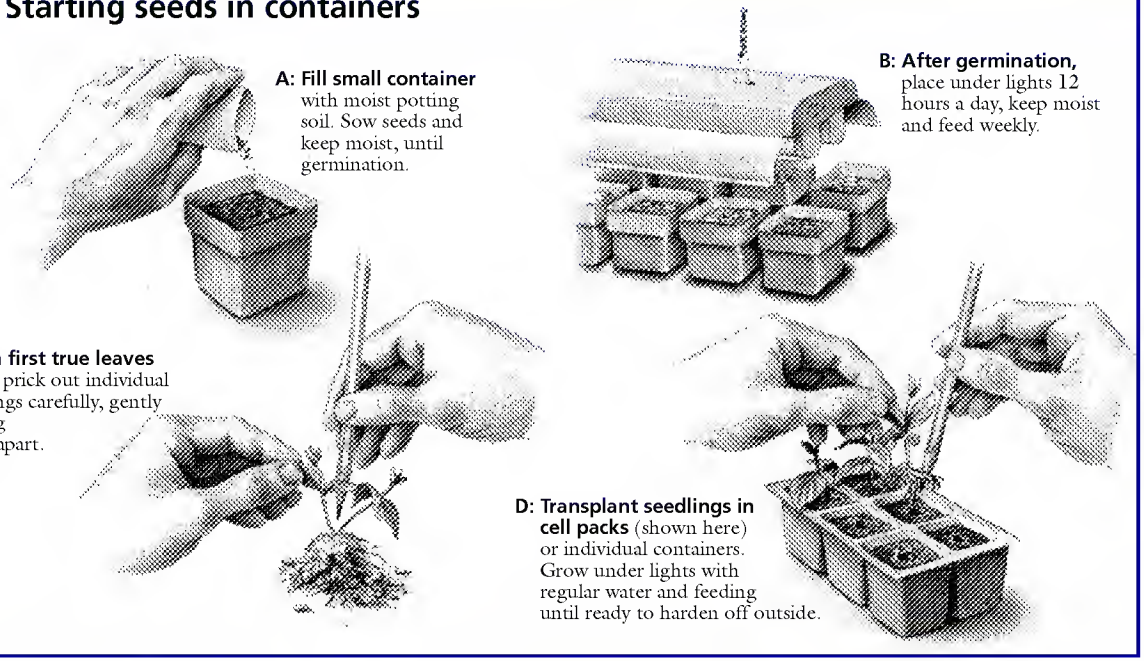
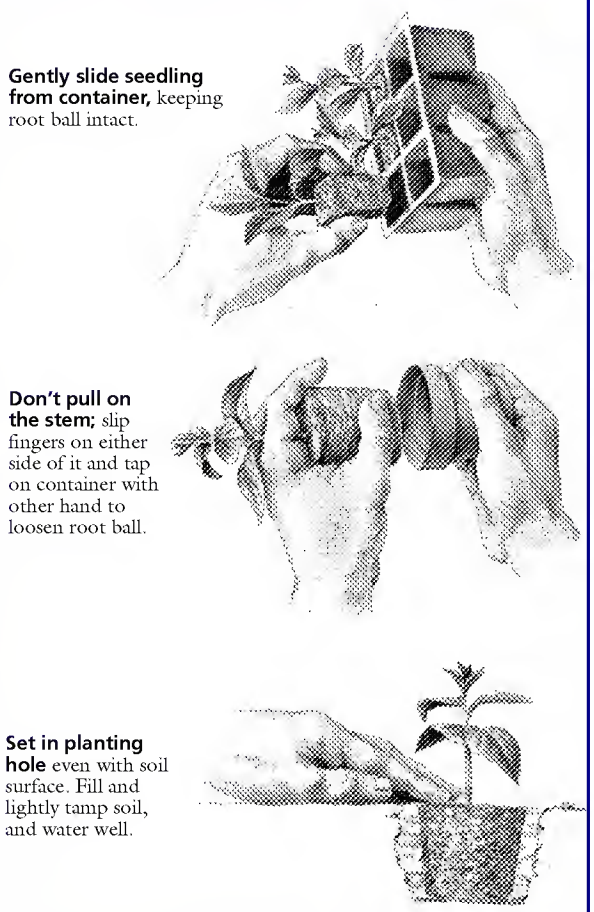


Fig. 4: Transplanting into the garden



ened potting soil. Holding a seedling gently by a leaf, prick it out of its pot with a sharpened pencil, taking care to disturb its roots and attached soil as little as possible. Poke a hole in the soil of the new cell or container, insert the seedling, and fill around it to bury the roots. Larger seedlings can be suspended in an empty cell while you add potting soil around the roots. Place the cell packs or individual containers under lights again, watering and feeding as before.

When the seedlings are large enough to put in the garden (after the last frost for tender plants), they need to be acclimated to conditions outdoors. Begin with a few hours in a spot protected from direct sunlight and wind, increasing to full exposure over several days.

TRANSPLANTING OUTDOORS

The procedure for setting container-grown plants in the garden is the same for plants you've grown from seeds or for those you purchase. Space the plants according to their mature size. Closely spaced perennials will fill in more quickly, but they can become ungainly or unhealthy as mature plants become crowded. A mulch of compost, bark chips, or grass clippings helps conserve moisture, improves the soil, and keeps weeds down while young plants are small. Where you're planting large, slow-growing perennials, consider planting annuals between them for several seasons.

Before transplanting, water the container and let it drain until the soil is moist but not soggy. Try to disturb the root ball as little as possible as you slide it from the cell or pot, as shown in **Fig. 4**. Gently loosen congested roots on the bottom and lower sides of the root ball; unwrap any that encircle the ball. Place the plant into a hole in the prepared bed slightly larger than the root ball and deep enough to position the top of the root ball at soil level. Fill the hole about halfway with soil, then soak the root ball with water, let it drain, and then add the remaining soil, firming it gently around the stem. Water is crucial for new plants; if nature doesn't oblige, provide 1 inch per week for the growing season—even for drought-tolerant plants. Annuals and perennials that are adapted to the conditions of your region and site should, once they're established, require minimal care.

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